Space Weather Forecast

Issued on Friday, 16 February 2024 at 01:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Isolated M-flares likely and a slight chance X-flares.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Activity was Moderate, with one M-class flare observed from a large and complex region which is in the far-west of the southwest quadrant. This is one of ten regions on the visible disc. A weakening region in the west of the northwest quadrant, and a developing region a little further east in the northwest are the only other regions of note. The remaining regions are all weak or stable, although a number of developing regions in the eastern hemisphere will continue to be monitored for further evolution. No Earth-directed coronal mass ejections (CMEs) were observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds were at slightly elevated levels following what appeared to be a weak CME arrival late on 14 February. Total magnetic field strength started at moderate levels, but quickly weakened, with the north-south component also varying weakly. Geomagnetic activity was Quiet (Kp 0 to 1).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was is below the Minor Radiation storm threshold and has followed a generally steady decline.

Four-Day Space Weather Forecast Summary
Solar Activity: Low activity is expected with a likelihood of M-class flares and a continued low risk of X-class flaring.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs are forecast. Solar winds are at slightly elevated levels, and are expected to decline towards ambient levels through the next four days. No fast wind enhancements are expected, with all possible sources appearing weak. Mainly Quiet activity is expected.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to continue to decline towards background levels in the absence of any further sources of radiation storms, although a complex region in the southwest quadrant still presents a limited risk.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	60	50
Very Active	R3 to R5 X	No	15	15	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	30	25	20	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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